Operating instructions, mounting & installation

FSTF (overview)

Room temperature sensors and measuring transducers

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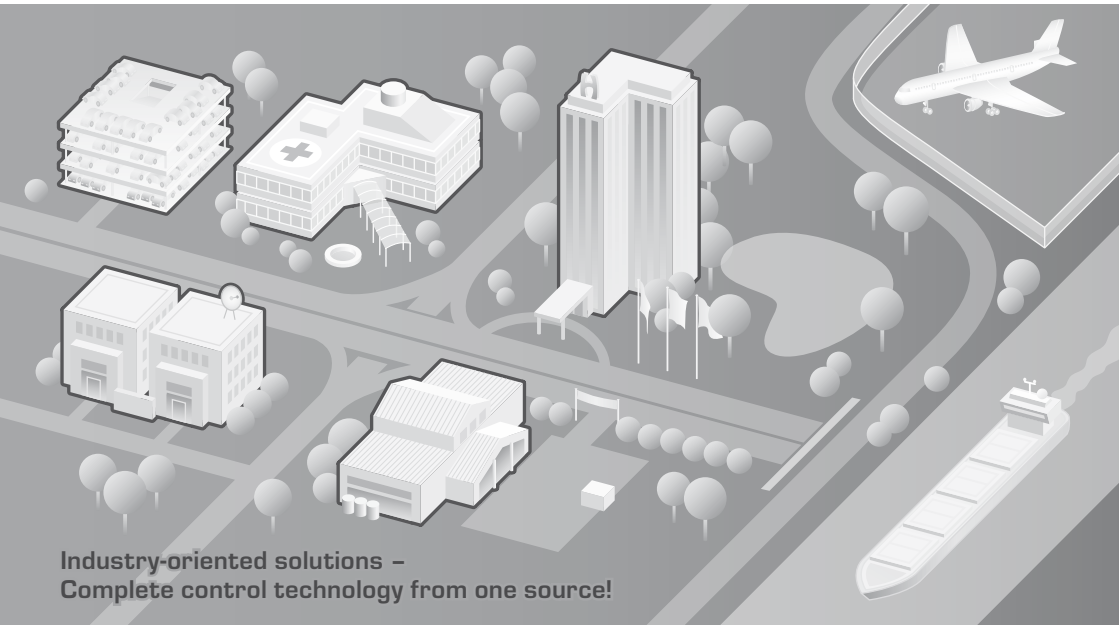

**Industry-oriented solutions –
Complete control technology from one source!**

THERMASGARD® **FSTF** **(overview)**

Room temperature sensors and measuring transducers
in-wall, panel switch programme

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APPLICATION:
Room temperature sensors and measuring transducers are used for measuring air temperature, for setpoint adjustment, for presence detection or as an operating panel with buttons, switches, potentiometers, status indicators (LEDs) in residential, working, office and business facilities. In-wall installation in connection with high-quality panel switch programmes, preferably with products by Busch-Jaeger, Berker, Feller, Gira, Legrand, Merten, Niko, or Jung. Room temperature sensors can be installed individually or in combination with light switches, plug outlets, or other in-wall devices.

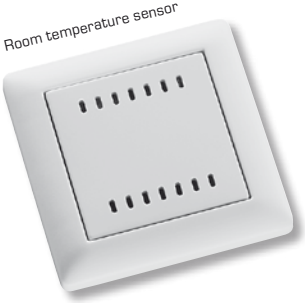
An overview of various versions ...

With rocker switch and LED

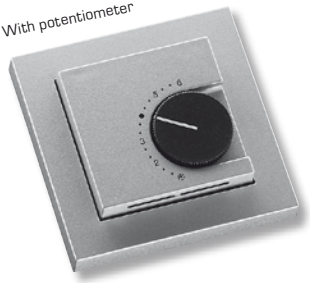
With pushbuttons and LEDs

Room temperature sensor

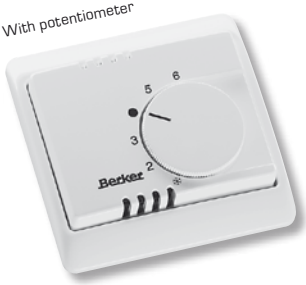
Room temperature sensor



With potentiometer



With potentiometer



With potentiometer, pushbutton, and LED

With potentiometer, pushbutton, and LEDs

With potentiometer, pushbuttons, and LEDs

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With potentiometer, pushbuttons, and LEDs

With potentiometer, pushbutton, and LED

With potentiometer and turn switch

With potentiometer

With potentiometer, pushbutton, and LED

With potentiometer, rocker switch, and LED

With potentiometer, rocker switch, and LED

With potentiometer, pushbutton, and LED

With potentiometer, pushbutton, and LEDs

THERMASGARD® **FSTF** **(general)**

Room temperature sensors and measuring transducers
in-wall, panel switch programme

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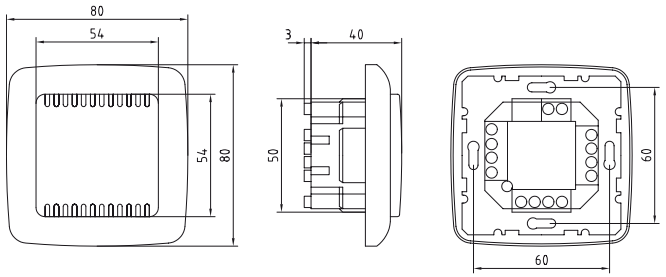
TECHNICAL DATA:

Measuring ranges:..... -30...+60°C
Sensor/output:..... see table, assembled on board, passive, active, or bus signal
Range suppression:..... in button
Potentiometer:..... standard 1kΩ
(other ratings optional upon request, e.g. 100Ω, 5kΩ, 10kΩ or potentiometer 0-10V linear)
Turn switch:..... max. 5 steps (0, Auto, I, II, III), 24V, max.130mA
LED:..... standard green, (red, yellow or two-colour optional, 24V DC)
Pushbutton:..... normally-open contact, 24V, max.35mA
Installation:..... in in-wall flush box Ø 55mm
Electrical connection:..... via plug terminals, 0.14 - 1.5mm², on safety extra-low voltage only, max. 30V AC, 42V DC
Humidity:..... max. 90% r.H., non-precipitating air
Protection class:..... III (according to EN 60730)
Protection type:..... IP 20 (according to IEC 529)
Measuring transducer:..... power supply 24V DC TB 2; 0...+50°C (other ranges see appendix, e.g. TB 1; -50...+50°C)
Output:..... 0-10V

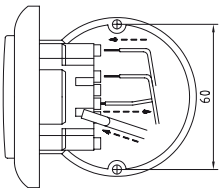
SWITCH PROGRAMME:

Manufacturer:..... Busch-Jaeger Reflex Si
(other switch programmes, manufacturers, colours and prices upon request)
Enclosure:..... plastic, standard colour alpine white (similar RAL9010)
(other colours with colour variants depending on the respective light switch programme are possible on request)

Dimensional drawing **FSTF**

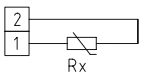


Installation scheme **FSTF**

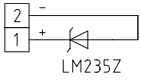


FSTF 1
Version with sensor

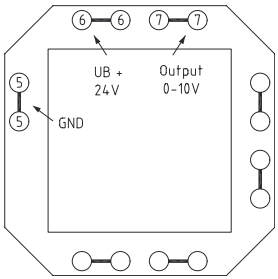
Connecting diagram **FSTF 1** (standard)



Connecting diagram **FSTF 1** (LM235Z)



Circuit diagram **FSTF 1-U**



THERMASGARD® **FSTF** **(diverse versions)**

Room temperature sensors and measuring transducers
in-wall, panel switch programme

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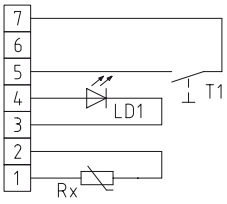
FSTF xx LT

Version with sensor,
LED, and pushbutton

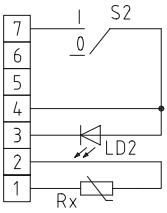
Connecting diagram **FSTFxxLT**



FSTF xx L D2

Version with sensor,
LED, and turn switch (two-step)

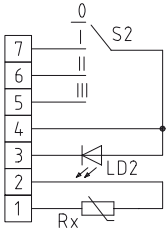
Connecting diagram **FSTFxxLD2**



FSTF xx L D4

Version with sensor,
LED, and turn switch (4-step)

Connecting diagram FSTFxxLD4



FSTF (diverse versions)

Room temperature sensors and measuring transducers
in-wall, panel switch programme

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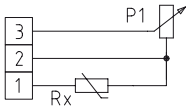
FSTF xx P

Version with sensor
and potentiometer

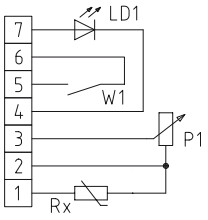
Connecting diagram **FSTFxxP**



FSTF xx LPW

Version with sensor,
potentiometer, and rocker switch

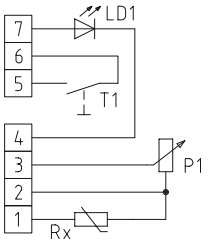
Connecting diagram **FSTF xx LPW**



FSTF xx LPT

Version with sensor, LED,
potentiometer, and pushbutton

Connecting diagram **FSTF xx LPT**



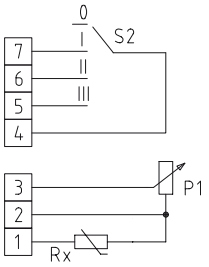
FSTF (diverse versions)

Room temperature sensors and measuring transducers
in-wall, panel switch programme

FSTF xx D4 P

Version with sensor,
turn switch, and potentiometer

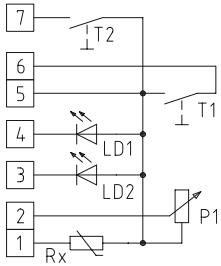
Connecting diagram **FSTFxxD4P**



FSTF xx 2L P 2T

Version with sensor, 2 LEDs,
potentiometer, and 2 pushbuttons

Connecting diagram **FSTFxx2LP2T**



Measuring principle of HVAC temperature sensors in general:

The measuring principle of temperature sensors is based on an internal sensor that outputs a temperature-dependent resistance signal. The type of the internal sensor determines the output signal. The following active / passive temperature sensors are distinguished:

a) Pt 100 measuring resistor (according to DIN EN 60 751)
b) Pt 1000 measuring resistor (according to DIN EN 60751)
c) Ni 1000 measuring resistor (according to DIN EN 43 760, TCR = 6180 ppm/K)
d) Ni 1000_TK 5000 measuring resistor (TCR = 5000 ppm/K)
e) LM235Z, semiconductor IC (10 mV/K, 2.73 V/°C). Ensure correct polarity +/- when connecting!
f) NTC (according to DIN 44070)
g) PTC
h) KTY silicon temperature sensors

The most important resistance characteristics are shown on the last page of these operating instructions. According to their characteristics, individual temperature sensors exhibit different slopes in the range between 0 °C and 100 °C (TK value). Maximum-possible measuring ranges also vary from sensor to sensor (for some examples to this see under technical data).

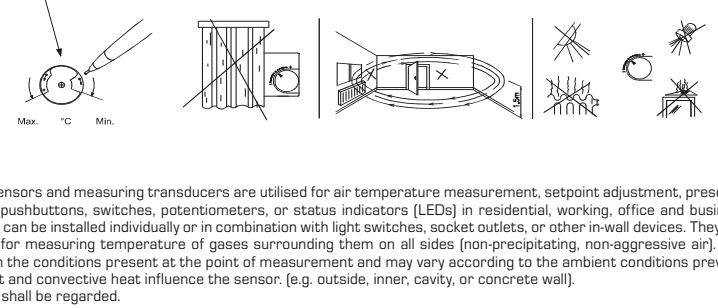
General notes

Our "General Terms and Conditions for Business" together with the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" (ZVEI conditions) including supplementary clause "Extended Retention of Title" apply as the exclusive terms and conditions".

Furthermore, the following points must be observed:

- These instructions shall be read before installation and putting in operation and all directions contained herein shall be followed!
- These devices must only be connected to safety extra-low voltage and under dead-voltage condition. To avoid damages and errors at the device (e.g. by voltage induction), shielded cables shall be used, laying parallel with current-carrying lines is to be avoided, and the EMC directives must be adhered to.
- This device shall only be used for its intended purpose. Respective safety regulations issued by the VDE, the states, their control authorities, the TÜV and the local energy supply company must be observed. The buyer has to ensure adherence to the building and safety regulations and has to avoid all dangers of any kind.
- We do not assume any warranties or liabilities for faults or damages arising or resulting from improper use of this device.
- Consequential damages caused by a fault in this device are excluded from warranty or liability.
- These devices must be installed by authorized qualified personnel only.
- The technical data and connecting conditions shown in the mounting and operating instructions delivered together with the device are exclusively valid. Deviations from the catalogue representation are not explicitly mentioned and are possible in terms of technical progress and continuous improvement of our products.
- In case of any modifications made by the user, all warranty claims are forfeited.
- This device must not be installed close to heat sources (e.g. radiators) or be exposed to their heat flow. Direct sun irradiation or heat irradiation by similar sources (powerful lamps, halogen spotlights) must absolutely be avoided.
- Operating this device close to other devices that do not comply with EMC directives may influence functionality.
- This device must not be used for monitoring applications, which solely serve the purpose of protecting persons against hazards or injury, or as an EMERGENCY STOP switch for systems or machinery, or for any other similar safety-relevant purposes.
- Dimensions of enclosures or enclosure accessories may show slight tolerances on the specifications provided in these instructions.
- Modifications of these records are not permitted.
- In case of a complaint, only complete devices returned in original packing will be accepted.

These instructions must be read before installation and putting in operation and all notes provided therein are to be regarded!



APPLICATION:
Room temperature sensors and measuring transducers are utilised for air temperature measurement, setpoint adjustment, presence detection, or as operating panel with pushbuttons, switches, potentiometers, or status indicators (LEDs) in residential, working, office and business facilities. Room temperature sensors can be installed individually or in combination with light switches, socket outlets, or other in-wall devices. They are electric contact thermometers, used for measuring temperature of gases surrounding them on all sides (non-precipitating, non-aggressive air). The measuring tolerance is depending on the conditions present at the point of measurement and may vary according to the ambient conditions prevailing at the place of installation, as radiant and convective heat influence the sensor. (e.g. outside, inner, cavity, or concrete wall).
Construction physics shall be regarded.

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